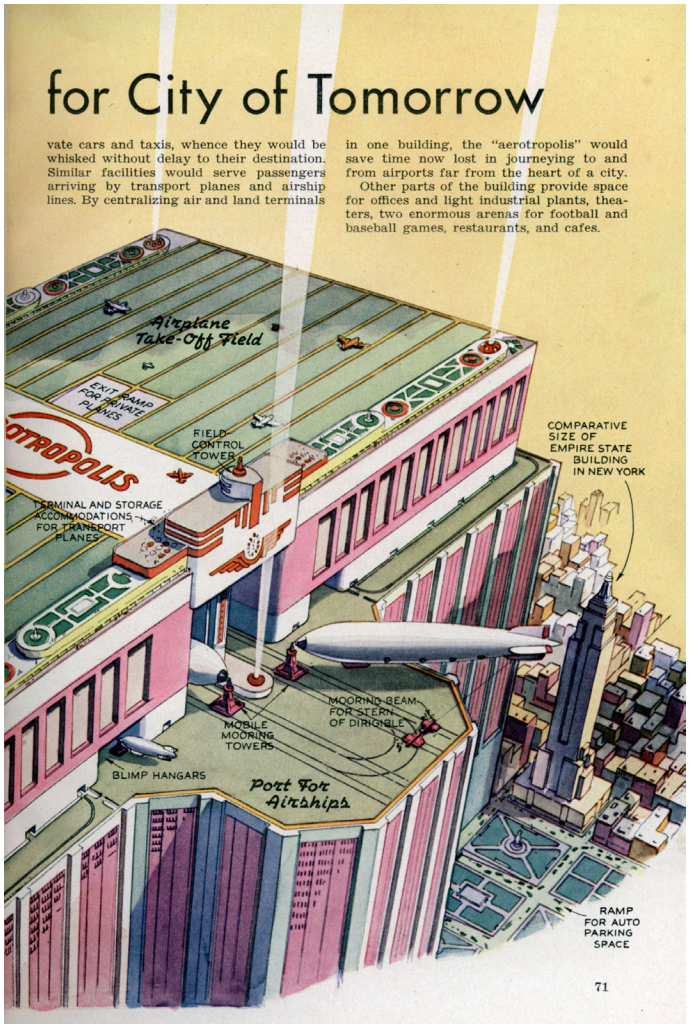
Land Use at Privatized Australian Airports - Classification and Analyses

In recent years, the air transport industry has experienced unprecedented growth, driven by strong local and global economies. Whether this growth can continue in the face of anticipated oil crises, international economic forecasts, and, recently, influenza outbreaks is yet to be seen. One thing is certain: airport owners and operators will continue to be faced with challenging environments in which to do business. In response, many airports recognize the value in diversifying their revenue streams through a variety of landside property developments within the airport boundary. In Australia, it is the type and intended market of this development that is a point of contention between private airport corporations and their surrounding municipalities. The aim of this preliminary research is to identify and categorize on-airport development occurring at the twenty-two privatized Australian airports which are administered under the Airports Act [1996]. This new knowledge will assist airport and municipal planners in understanding the current extent and category of on-airport land use, allowing them to make better decisions when proposing development both within airport master plans and beyond the airport boundary in local town and municipal plans.

by: Nicholas Stevens and Arron Walker



Introduction

Over time, changes in ownership of Australian airports have been significant. In the first instance, the Australian Government devolved responsibility of aerodromes and civil airports through the Aerodrome Local Ownership Plan (1958 - 1987). This program transferred the ownership, operating and maintenance responsibilities of 'local service' airports to the local municipal authorities. In a second stage, the Federal Airports Corporation (FAC) was formed in 1988 with responsibility for twenty-two nationally significant airports. The FAC operated on commercial lines utilizing the governance, management and incentive strategies of the private sector.

Between 1997 and 2002, the Australian Commonwealth Government leased the FAC administered airports to private corporations and syndicates under the provisions of the new Airports Act [1996]. These airport syndicates and corporations are comprised of a range of international and national business interests. For example, internationally, Schiphol Group; British Airports Authority; Macquarie Airports Group; Deutsche Asset Management and Hastings Fund all have substantial interests in Australian airports in partnership with a variety of national companies. The Australian Government netted billions of dollars in the sale of these airport leaseholds. Despite the Asian economic crisis at the time, the price earnings ratios for Australian airports were high. This was in part due to limited opportunities to purchase international airports in the Asia-Pacific region and the high degree of corporate autonomy bestowed (Hooper et al. 2000). Indeed the government sales team marketed the investment potential and opportunity for revenue from property development, car parking and commercial initiatives (Freestone et al. 2006). Airport operators purchased a wide range of development rights with few restrictions on land uses and the types of development

that may be planned and constructed including retail mall style developments and supermarkets. This fact was not well recognized by the adjacent municipalities at the time, which expected airports to remain principally air transport hubs.

Airport privatization was primarily an opportunity to unburden the nation from public sector funding of airport development. It has resulted in airport operators seeking highest returns on their investment, and they have been quick to outline and instigate expectations for the capitalization of their land assets. In the process, Australian airports have shifted from principally being 'public' transport interchange nodes to shareholder-oriented commercial ventures where aviation revenue is only one part of the airport 'business'. Where suitable on-airport land assets exist, Australian airport corporations have been well placed to benefit from the business and developer demand for airport-related and broader commercial development. Australian airport corporations have embraced the 'airport city' concept as strategic intent and as such a range of issues and impacts now pose considerable challenges for both the airport and the surrounding urban and regional environment.

Airport City Developments

The term 'airport city' has been used to describe the growth of aeronautical and non-aeronautical land developments occurring at, and surrounding modern airports worldwide. An airport city may be considered both the strategic and ad hoc expansion of industrial, commercial and retail services and facilities both on-airport and within the surrounding region, often with the intention of servicing both the travelling public and the regional customer (Conway 1993; Blanton 2004; Kasarda 1996; Güller and Güller 2003). The on-airport development of industrial and commercial services is intended to reduce an airport's sole reliance on the travelling public and broaden their revenue stream enabling them to be more resilient to volatility in the air transport industry.

The Conflict

Since privatization, the rate of non-aeronautical landside development at Australian airports has been swift. This rapid departure from traditional airport development has caused some anxiety and even conflict with local municipal governments. Cooperative airport and regional development is inhibited under the airport ownership structure in Australia, because local and state government control of on-airport development is limited to consultative processes, and no mechanism exists for airport operator input into regional development. Airport and metropolitan land use planning has been occurring in isolation of one another, resulting in incompatible land use and development decisions both on-airport and in the surrounding region (Stevens et al. 2007). Local and municipal governments consider airport commercial and retail development has the potential to impact on the viability of urban centre retailing through the diversion of expenditure, often away from city-planned and intended centers of employment and commerce (FCA 2005). Airport operators are similarly alarmed by local land use planning for consolidated residential development under flight paths and high-rise airspace interference. The Airports Act [1996] allows no provisions for either stakeholder to endorse, influence or veto land use planning decisions of the other.

The Australian Government has previously indicated that there will be no substantial review of the Airports Act [1996] to accommodate reciprocal input. This is due in part to the fact that the legislation ensures the protection of airports as assets of national significance. The Federal Government will not allow disparate local government planning regimes to affect areas that are deemed significant to the national economy. Indeed, Section 112 of the Airports Act [1996] specifically excludes state laws from applying in relation to land use planning and building activities. However, at several airports, there are various informal processes for consultation (i.e. MOUs; monthly meetings; reference groups) regarding adjacent or potentially conflicting development, yet these are chiefly for 'comment' rather than genuine input or co-operation. If a consultative and cooperative resolution will not be legislated, airports and regional stakeholders require better comparative land use planning tools from which they may be able to make informed decisions.

Australian Airport Planning under the Airports Act [1996]

Two key features of the Australian airport planning approvals process are master plans and major development plans. A master plan is a long-term plan for the whole of an airport site and deals with broader indicative intentions, rather than any detail on individual projects. It is a strategic document, which sets out the airports' agenda for current and future airport manage-

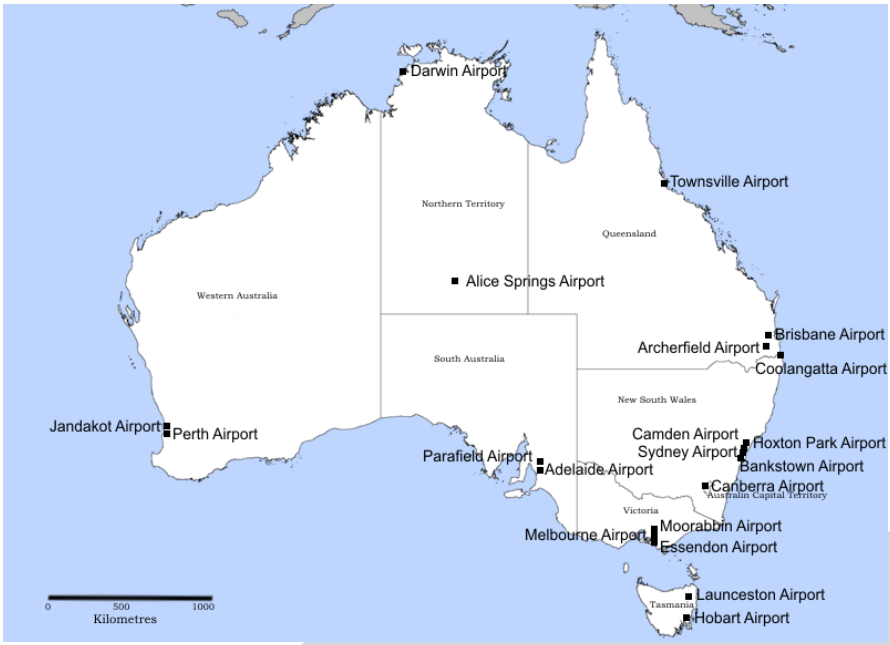


Figure 1: *Study Group within Australia (Source: N. Stevens)*

ment and development. The master plan is required, under the Airports Act [1996], to relate to a period of twenty years and it must be updated every five years. Upon the release of a draft master plan by the airport operator, a public consultation period of three months is initiated. The airport is then required to demonstrate to the Federal Government how it has satisfactorily addressed and managed the received submissions before final approval is granted.

Federal Government approval of a master plan does not represent approval to build any specific major development referred to in the master plan. Major development applications must be separately approved. A major development plan (MDP) is required for each development that is defined as 'major' by section 89 of the Airports Act [1996] (relating to square meterage and the costs of construction). The MDP is required to be released for public (and municipal/local government) comment, be consistent with the intent of the master plan and include an environmental impact assessment. Each MDP is only subject to the development approvals process of the Federal Government and is not required to have due regard to local or state planning regulations.

A Way Forward

In Australia, an improved understanding of current and intended airport and regional land use is necessary if airport and municipal planners are to advance cooperative and compatible development. This preliminary investigation focuses on the on-airport land use at the Australian airports administered under the Airport Act [1996].

To aid planning continuity the Airports Act [1996] seeks to encourage airport operators to utilize a similar land use planning vernacular within their airport master plans as exists within the neighboring municipal regions. However, few airports do, and, as such, the twenty-two airport master plans have limited consistency with their municipal neighbor nor are they comparable with one another. A coherent and reliable land-use zoning nomenclature for Australian on-airport development does not exist. Such a system may be considered invaluable in assisting airport and regional consultation and in establishing broader understanding of airport development intention for all stakeholders. The significance of this research is it provides for the first time the ability to identify, quantify and compare the actual and proposed landside property development at these twenty-two airports. This knowledge will assist both airport operators and local and municipal governments by providing a national land use classification for on-airport development. This has allowed for comparative analyses and understanding across a range of airport contexts, including airport type and allowing on-airport land use development to be reviewed in consideration of airports' aircraft movements.

Airport Study Group

Twenty-two Australian airports are administered under the Air-

Table 1: *Airport Study Group*

Airport	Code	Type	Aircraft movements 2006 – 2007	Airport Property Area (hectares)	Owner
Adelaide	ADL	RPT	103,028	785	Adelaide Airport Ltd
Alice Springs	ASP	GA	22,692	3550	Northern Territory Airports Pty Ltd
Archerfield	YBAF	GA & PT	119,644	259	Archerfield Airport Corporation Pty Ltd
Bankstown	BWU	GA & PT	329,550	313	Bankstown Airport Limited
Brisbane	BNE	RPT	169,296	2700	Brisbane Airport Corporation
Camden	CDU	GA & PT	10,190	194	Camden Airport Limited
Canberra	CBR	RPT	78,484	436	Capital Airport Group Pty Ltd
Coolangatta	OOL	RPT	68,416	365	Queensland Airports Pty Ltd
Darwin	DRW	RPT	87,632	1540	Northern Territory Airports Pty Ltd
Essendon	MEB	GA & PT	56,784	305	Essendon Airport Pty Ltd
Hobart	HBA	RPT	29,978	499	Hobart International Airport Pty Ltd
Hoxton Park	YHOX	GA	40,000	87	Hoxton Park Airport Limited
Jandakot	JAD	GA & PT	387,722	622	Jandakot Airport Holdings Pty Ltd
Launceston	LST	GA & PT	20,322	180	Australia Pacific Airports Corporation
Melbourne	MEL	RPT	180,814	2647	Australia Pacific Airports Corporation
Moorabbin	MBW	GA & PT	276,146	294	Moorabbin Airport Corporation
Parafield	ADZ	GA & PT	227,910	437	Parafield Airport Ltd
Perth	PER	RPT	103,976	2105	Westralia Airports Corporation Pty Ltd
Sydney	SYD	RPT	286,342	905	Macquarie Airports Group
Townsville	TSV	RPT	60,612	937	Queensland Airports Pty Ltd

Zoning Category	Description
Residential	Predominant use is housing.
Commercial	Retail, business, community, leisure, entertainment, recreation, hotels, conference facilities, shopping centres, (i.e., will mostly be non-aeronautical)
Industrial	Warehouses, freight, manufacturing, service oriented businesses, (can be either aeronautical or non- aeronautical)
Commercial and Industrial	Mix use commercial and industrial.
Open Space & Conservation	Open areas, nature based recreation areas, protected areas.
RAAF Base	Military airbase of the Royal Australian Air Force (RAAF). The Australian Department of Defence has planning and control of this area.
Airport Airside (incl. terminal and aviation support)	Aviation operational areas, terminal and aviation support areas.

Table 2: *Zoning Categories*

ports Act [1996]. Of these, twenty must comply with Part 5 of the Airports Act [1996] and produce a master plan which includes land use zoning information. These airports have been deemed significant to the nation and were chosen as the airports of interest for this paper (Figure 1). Three types of airports were identified in the study group: Regular Passenger Transport (RPT), General Aviation (GA) and Pilot Training (PT) airports. Table 1 displays the airport type, aircraft movements, property in hectares and the current lessee.

The on-airport land use information was obtained from twenty airport master plans submitted to the Australian Federal Government as required by the Airports Act [1996]. The land use zoning information was geo-referenced in a geographic information system (GIS) and the raster images were converted into polygon feature. This was achieved by manually digitizing each of the land use zones to create separate polygons in the feature class. The attributes for each polygon contained the original land-use zone information obtained from the master plan. In addition, the specific type of development already existing at each of the airports was noted. That is the commercial, industrial and retail services that are in current operation at the airport site.

Re-classification of Land Use Zoning

It was necessary to re-classify the inconsistent airport master plan zoning into a common set of zoning categories. Without such a re-classification the comparison of the respective land use zones would be impossible. The descriptions of the re-classified zoning categories are shown in Table 2.

The percentage of total area for each zoning category was then calculated. The polygon feature class used automatically calculates polygon areas as they are digitized. A simple GIS attribute query was able to calculate the percentages from this information. The resultant figures allowed for a variety of comparative analyses across airport contexts.

Results and Discussion

The total land use zoning percentages for each airport are summarized in Table 3. The landside development subtotal is the sum of all residential, commercial and industrial development and is shown as the italicized values (shaded row) in Table 3. This subtotal is significant as it represents the proportion of land zoned for on-airport property development (i.e., aeronautical or non- aeronautical). On average, 49 percent of the airport is utilized for airside activities, 8 percent for Defense uses, 14 percent for open spaces and 29 percent for landside development activities. The use of average values, whilst interesting, is not empirically significant, and, as such, the standard deviation was calculated for each zoning category so a measure of dispersion could be calculated and analyzed for each airport (Table 3).

In Australia, it would appear that the amount of land being zoned for landside development has no relation to the size of the airport (either in terms of property area or in terms of aircraft movements). From the results, it is evident that all airports in the study group, with available land assets, have zoned with capitalization of landside development in mind: commercial, industrial and mixed use commercial/industrial.

From the analyses of existing on-airport development, there is an apparent disjunction between the airside operations of many

Table 3: *Airport Land Use Zoning Percentages*

Land Use Zoning	ADL	ASP	YBAF	BWU	BNE	CDU	CBR	OOL	DRW	MEB	HBA	YHOX	JAD	LST	MEL	MBW	ADZ	PER	SYD	TSV	Average	Standard Dev (σ)
Residential	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.55	2.4
Commercial	17	4	0	16	20	5	18	18	4	23	0	0	25	2	7	7	15	3	3	0	9.35	8.4
Commercial and Industrial	13	0	37	35	25	2	37	0	0	16	34	13	0	0	10	52	8	30	8	7	16.35	15.6
Industrial	0	4	6	0	0	0	0	11	1	0	0	0	0	5	7	0	17	0	3	0	2.7	4.5
Landside Development subtotal	*30*	*19*	*43*	*51*	*45*	*7*	*55*	*29*	*5*	*39*	*34*	*13*	*25*	*7*	*24*	*59*	*40*	*33*	*14*	*7*	*28.95*	*16.5*
Open Space and Conservation	13	65	2	4	2	25	0	25	3	0	20	27	37	0	21	0	9	14	4	0	13.55	16.2
RAAF Base	0	0	0	0	0	0	0	0	78	0	0	0	0	0	0	0	0	0	0	91	8.45	25.4
Airport Airside (incl. terminal and aviation spt)	57	16	55	45	53	68	45	46	14	61	46	60	38	93	55	41	51	53	82	2	49.05	20.7

airports and the kinds of development being proposed and established within their boundaries. It is evident that a number of the airports studied have adopted a development strategy which focuses on offering retail goods and services for the regional consumer as a means of providing the desired alternate revenue stream. It is this type of Federal Government approved development that is at the core of airport operator and municipal conflict over the establishment of competing retail centers. The medium to long term implications for such development is yet to be established, but what is certain is the continuing discourse between the airport and the region will limit the establishment of cooperative strategies of airport and regional development.

Conclusion

This preliminary research provides for a clearer interpretation of the on-airport land use at Australia's privatized airports. It is an important step in understanding the progression of the 'airport city' concept within a study group, subject to the same legislative requirements. This work reveals the variety of interpretation that airport privatization legislation may be open to, and it provides not only Australian stakeholders with insight into the changing role of airports but it is useful for international airport and regional stakeholders considering airport privatization. This analysis offers an indication of an airport's development in consideration of the group, providing a better suggestion of how an airport's actual and intended development fits within the national profile. This information is invaluable when evaluating the scope and scale of on-airport development between the different types of airports in the study group; Regular Passenger Transport (RPT), General Aviation (GA) and Pilot Training (PT) airports.

This work presents an insight into the land use planning and development intentions of airport operators and neighboring municipalities in Australia, utilizing a common land-use planning nomenclature. This lack of national consistency regarding Australian airport master planning is one of the foci of a recently released issues paper for the development of an Australian National Aviation Policy Statement by the Australian Government. In establishing a comparative platform for the analysis of on-airport development, both airport and municipal planners may begin to recognize where and how their airport and region fits into the dialogue surrounding land use compatibility. Compatible and cooperative development will only enhance the economic, environmental, and social outcomes for both the airport and the region. This work may assist all stakeholders in acknowledging that both public service and shareholder motivated agendas can coexist. This research also provides evidence of the current ad-hoc and incompatible airport and regional development while offering 'lessons learned' from a range of airport circumstance. In addition, through the classification of airport operations (RPT, GA, PT) and the analysis of their development intentions, the relationships between aeronautical function and on-airport land use is better understood. This investigation will assist airport and municipal planners in recognizing the extent, and type of, actual and proposed on-airport land use in Australia. It will establish a national reference for decision-making when proposing development both within airport master plans and beyond the airport boundary in local town and regional plans.

Future Work

Further detailed analyses are required to determine the on-airport and regional implications of the development intentions outlined by the airports in the study group. Future work will audit the activities within airport terminals (concessions), in addition to further detailed identification of the specific kinds of retail, commercial and industrial activity taking place on airport land. This examination will highlight the intended customers and consumers of airport goods and services and expose relationships that exist between terminal activities, land use activities and different types of airports.

Research is currently being undertaken to analyze and classify the land use zoning categories of the region to better highlight the urban contexts of particular airports. This will, for the first time, allow comparative analyses of airport and regional land use planning and development. It will permit issues at the core of the airport and regional planning agendas, such as the impacts and opportunities between different zoning categories, to be more clearly articulated. Through future national and international analyses, a clearer picture of how airport and regional planners may lever the potential of a particular airport type with suitable and sustainable landside and regional developments will be recognized.

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